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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WILLIAMS, ARUN C

ART UNIT	PAPER NUMBER
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2838

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/543,116	KHOO, TENG CHEOK	
	Examiner	Art Unit	
	Arun Williams	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 15 May 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-34 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 July 2005 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>8/30/2006</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

2. Claims 23,27-32 is objected to because of the following informalities:
 - a. In claims 23,28-32 in line 1 recites "claim 21", it should read as -- claim 22--.
 - b. In claim 27 in line 1 recites "claim 21", it should read as -- claim 26--.For examination purposes, the changes indicated above will be used.
Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-5,10-13, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Cummings, USPAT6,025,699.**

As claims 1-5,10-13,15 Cummings discloses and shows in Fig. 1 an apparatus for monitoring the condition of a storage battery comprising first(+) and second(-)

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connection conductors each for connection to a respective output terminal of the battery, switching (158) means, connected in series(154) with a resistance between the connection conductors and voltage measurement (160) means connected in parallel with the resistance, wherein the switch is a transistor (applicant's solid-state switching device) and gate is connected to a controller (110) (applicant's microcontroller), wherein communication to a computer system (310) (applicant's apparatus) to indicative supplied or supply able by the battery (which meets applicant's state of battery)(col.3, lines 20-37), wherein the computer system has a display screen(also meets applicant's remote location), thus displaying icons or alphanumeric characters are implicit (col.5, lines 20-23)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claims 8,9,22,23,28,32, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Namura, USPAT 6,380,713.**

As for claims 22,23, and 28, Cummings differs from the claimed invention because he does not explicitly disclose a casing having an upper portion and a lower portion, a cover enclosing the upper portion of the casing, and a pair of terminals mounted on the cover.

Namura shows in Fig. 2 a casing (1) having an upper portion (1A) and a lower portion(1B), a pair of terminals(6) mounted on the cover, and connected to the cathode and anode, wherein the electronic circuit(4) is within the cover.

Namura is evidence that ordinary skill in the art would find a reason, suggestion or motivation to use a casing having an upper portion and a lower portion, a cover enclosing the upper portion of the casing, and a pair of terminals mounted on the cover.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings by using a casing having an upper

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portion and a lower portion, a cover enclosing the upper portion of the casing, and a pair of terminals mounted on the cover for advantages such as providing the ability to hold batteries (col.1, line 36), as taught by Namura.

As for claims 8 and 9, Cumming discloses the claimed invention except for each closure having a magnitude of 10^{-5} seconds and resistance being 10^{-3} ohms. It would have been obvious to one having ordinary skill in the art at the time of the invention was made the closure having a magnitude of 10^{-5} seconds and resistance being 10^{-3} ohms, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

As for claims 32 and 34, see the rejection for claim 13 and 15, respectively.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Nagase, US2002/0036481.

As for claim 6, Cummings differs from the claimed invention because he does not explicitly disclose an amplifier to amplify the voltage that appears across the resistance.

Nagase discloses and shows in Fig. 2 an amplifier(6) to amplify the voltage that appears across the resistance(5) (pg. 2, par.[0024])

Nagase is evidence that ordinary skill in the art would find a reason, suggestion or motivation to use amplifier to amplify the voltage that appears across the resistance.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings by using amplifier to amplify the

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voltage that appears across the resistance for advantages such as providing accurate measurement (pg.1, par.[0003]), as taught by Nagase.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Budnink et al, Budnink, US2005/0030040.

As for claim 19, Cummings differs from the claimed invention because he does not explicitly disclose entering a sleep mode when battery EMF remains constant for predetermined period.

Budnink discloses entering into sleep mode after inactivity for a predetermined period of time (pg.4, par.[0046]).

Budnink is evidence that ordinary skill in the art would find a reason, suggestion or motivation enter sleep mode when battery EMF remains constant for predetermined period.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings by entering a sleep mode when battery EMF remains constant for predetermined period for advantages such as providing the avoidance of battery drain (pg.4, par.[0046]), as taught by Budnink.

11. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Namura and Nagase, US2002/0036481.

As for claim 24, Cummings modified by Namura differs from the claimed invention because he does not explicitly disclose display using a light emitting diode.

Nagase discloses and shows in Fig. 2 a LED indicator(6) (applicant's light emitting diode)(pg. 2, par.[0024]).

Nagase is evidence that ordinary skill in the art would find a reason, suggestion or motivation to use a light emitting diode.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings modified by Namura by using a light emitting diode for a display for advantages such as providing accurate measurement (pg.1, par.[0003]), as taught by Nagase.

12. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Namura and Kurle et al,(Kurle), USPAT6,072,299

As for claim 25, Cummings modified by Namura differs from the claimed invention because he does not explicitly disclose a display mounted flush with the cover.

Kurle shows in Fig. 1 display(36) mounted flush with the cover(26).

Kurle is evidence that ordinary skill in the art would find a reason, suggestion or motivation to use a display mounted flush with the cover.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings modified by Namura by using a display mounted flush with the cover for advantages such as providing a self-monitoring battery (col.3, lines 10-13), as taught by Kurle.

13. Claims 7, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Namura, Nagase, and Ida, USPAT6,414,466.

As for claims 7 and 26, Cummings modified by Namura and Nagase differs from the claimed invention because he does not explicitly disclose a segmented display device and an analog-to-digital converter.

Ida discloses and shows in Fig. 2 a segmented display device (203) and an analog-to-digital converter (104) (col.2, lines23-62).

Ida is evidence that ordinary skill in the art would find a reason, suggestion or motivation to use a segmented display device.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings modified by Namura and Nagase by using a segmented display device and an analog-to-digital converter for advantages such as providing an economically battery charge information device (col.1, lines 33-34), as taught by Ida.

As for claim 27, see the rejection for claim 12.

14. Claims 14,16,20,29,33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Namura and Karunasiri et al, (Karunasiri), USPAT5,703,464

As for claims 14,16,20,33, Cummings modified by Namura differs from the claimed invention because he does not explicitly disclose a electronic control bus of a vehicle, operates using a radio link, and a lead-acid storage battery.

Karunasiri discloses and shows in Fig. 2 a electronic control bus of a vehicle, operates using a radio link, and a lead-acid storage battery (col.1-3, lines 38-5 & col.4, lines 23-46)

Karunasiri is evidence that ordinary skill in the art would find a reason, suggestion or motivation to use a electronic control bus of a vehicle, operates using a radio link, and a lead-acid storage battery.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings modified by Namura by using a electronic control bus of a vehicle, operates using a radio link, and a lead-acid storage battery for advantages such as provided optimize performance of equalization (col.2, line 50-51), as taught by Karunasiri.

As for claim 29, Cummings in view of Namura and Karunasiri discloses the claimed invention except for indicating the condition of the battery during the engine off and engine is in operation. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to allow the user to have indication of the condition of the battery during the engine off and engine on to allow the user to be constantly informed, it would be based on the user's optimization preference.

15. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Nakanishi, USPAT6,232,743.

As for claims 17 and 18, Cummings differs from the claimed invention because he does not explicitly disclose monitoring the output of a charging device for the battery and for issuing a warning in the event of its whole or partial failure.

Nakanishi discloses and shows in Fig. 1 monitoring the output of a charging device for the battery and for issuing a warning in the event based on the what's detected (which meets applicant's of its whole or partial failure)(col4, lines 8-53).

Nakanishi is evidence that ordinary skill in the art would find a reason, suggestion or motivation to monitoring the output of a charging device for the battery and for issuing a warning in the event of its whole or partial failure.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings by monitoring the output of a charging device for the battery and for issuing a warning in the event of its whole or partial failure for advantages such as the ability to provided a reliable battery related vehicle (col.1, line 38-40),as taught by Nakanishi.

16. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Skidmore et al,(Skidmore), US2007/0141404

As for claim 30, Cummings differs from the claimed invention because he does not explicitly disclose detecting leakage of energy.

Skidmore discloses detecting leakage of energy (pg.1, par. [0006]).

Skidmore is evidence that ordinary skill in the art would find a reason, suggestion or motivation to detect leakage of energy.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings by detecting leakage of energy for advantages such as providing the ability to respond to the leakage (pg.1, par.[0007]),as taught by Skidmore.

17. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cummings in view of Namura and Reni et al, (Reni),USPAT5,352,968

As for claim 31, Cummings modified by Namura differs from the claimed invention because he does not explicitly disclose measuring total potential of all cells and resistance.

Reni discloses calculating series resistance and state of charge of the battery(which meets applicant's total potential) (Abstract).

Reni is evidence that ordinary skill in the art would find a reason, suggestion or motivation to measuring total potential of all cells and resistance.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Cummings modified by Namura by measuring total potential of all cells and resistance for advantages such as providing accurate SOC determination(col.1, lines 40-42),as taught by Reni.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arun Williams whose telephone number is 571-272-9765. The examiner can normally be reached on Mon - Thurs 6:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Akm Ullah can be reached on 571-272-2361. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Arun Williams
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